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ESTATE OF ELWOOD GRISSINGER

JUNE 19, 1951.—Committed to the Committee of the Whole House and ordered to be printed

Mr. BYRNE of New York, from the Committee on the Judiciary, submitted the following

REPORT

[To accompany H. R. 3730]

The Committee on the Judiciary, to whom was referred the bill (H. R. 3730) for the relief of the estate of Elwood Grissinger, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

A similar bill was favorably reported by the committee and passed the House in the Eighty-first Congress, but no action was taken by the Senate.

The facts will be found fully set forth in House Report No. 807, Eighty-first Congress, which is appended hereto and made a part of this report.

[H. Rept. No. 807, 81st Cong., 1st sess.]

The purpose of the proposed legislation is to authorize the Secretary of the Treasury to pay and deliver to the estate of the late Elwood Grissinger certain of the bonds which the United States received from the Republic of France and other foreign countries through the United States Liquidating Commission as reimbursement to the United States for the sale of surplus property after the First World War. By inadvertence, the use of telephone systems based on the long-distance-telephone patents issued in various European countries to Elwood Grissinger were sold as United States surplus property even though the same were rightfully the property of Elwood Grissinger. This bill will authorize the Secretary of National Defense, with the approval of the Secretary of the Treasury, to determine what equitable compensation, if any, as a result of such use and sale should be paid to the estate of Elwood Grissinger. The Court of Claims is also authorized to assist the Secretary of National Defense if such assistance is requested.

STATEMENT OF FACTS

This matter of the claim of the estate of the late Elwood Grissinger against the United States has previously been before this committee and the Congress of the United States. In fact, on April 18, 1924, the Congress of the United States approved a private bill (Private No. 15, 68th Cong.), which is quoted for convenience:

AN ACT Authorizing the Court of Claims of the United States to hear and determine the claims of Elwood Grissinger

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the United States Court of Claims be, and it is hereby, authorized and directed to hear and determine the claim of Elwood Grissinger for compensation for any unlawful sale by the United States, and any unlawful sale by others for the United States, either in the United States or elsewhere, for any use outside the United States and exclusive of any use by the United States, of certain long-distance telephone repeaters and of a system for the use of any repeaters on transmission lines, as disclosed and described in certain letters patent granted to said Grissinger by the United States, and also as disclosed and described in patents granted to him by certain foreign countries and competent jurisdiction is hereby conferred upon said court in this matter: *Provided,* That in any such suit the United States may avail itself of any and all defenses, general or special, that might be pleaded by defendant in an action for infringement under the law in any jurisdiction where such sale occurred, or otherwise, at the date of such sale.

Approved, April 18, 1924.

By the special act quoted above, Congress authorized and directed the United States Court of Claims to hear and determine the claim of Elwood Grissinger for compensation for an unlawful sale by the United States, or any use outside the United States, of certain long distance telephone repeaters and a system for the use of any repeaters on transmission lines as disclosed and described in letters patent granted to Grissinger by the United States, and also in letters patent granted to Grissinger by foreign countries.

Grissinger, on February 20, 1902, made an application for a United States patent covering an invention of telephone repeaters. The American Telephone & Telegraph Co., on June 3, 1916, purchased this application for the sum of $500,000, and on September 12, 1916, a United States patent covering the invention was issued to the American Telephone & Telegraph Co. In March and April of 1912 Grissinger made application in France, Italy, Great Britain, and Belgium, for letters patent covering his invention of such telephone repeaters, and a French patent thereon was issued to him in 1915. The American Expeditionary Force in France found the telephone service available in France inadequate, and a complete telephone system, including repeaters covered by Grissinger's invention, was constructed and installed by the AEF in France. Most of the engineers of the telephone system of the AEF had been drawn from the personnel of the American Telephone & Telegraph Co. In August 1919, the United States sold this telephone system and equipment, including the repeaters covered by Grissinger's invention, to France along with other surplus property and received in payment therefor approximately $400,000,000 in bonds.

Pursuant to the Special Jurisdictional Act, approved April 18, 1924, Grissinger brought suit in the Court of Claims against the United States for the use of his French patent in the sale of the telephone system to France. The Court of Claims decided that Grissinger was

not entitled to recover because a United States patent upon telephone repeaters had been issued to one d'Humy in 1907 prior to the issuance to Grissinger's patent in France in 1912, and that such patent to d'Humy anticipated and rendered Grissinger's Franch patent invalid. The Court of Claims held that since it had been stipulated in the Court of Claims by plaintiff and defendant that if certain changes in the electrical connections were made from those set forth in d'Humy's patent, d'Humy's invention would be operative, and, therefore, Grissinger's patent was thereby anticipated and invalid. The estate of Elwood Grissinger now contends that such stipulation was and is in fact untrue, and was entered into after d'Humy's inventions had been proven to be inoperative, after the commissioner of the Court of Claims had found that d'Humy's patent was inoperative, and was entered into by Grissinger's attorneys at the time without the knowledge or consent of said Grissinger.

The estate of Elwood Grissinger claims that Grissinger had, before the date of the stipulation, brought a suit against France for the use of his invention in this telephone system, and that two courts of that country had sustained his patent as against all others, including d'Humy's patent, and that he was about to proceed with further proceedings in France for the determination of the amount of his damage when he was induced as a matter of patriotism in avoiding diplomatic complications with the Government of France, by Col. Joseph I. McMullen, an officer of the United States, not to press the French suit in consideration of the agreements of the then Secretary of War, John W. Weeks, to request a special act of Congress for his relief by the United States would be procured. Such a bill was thereupon introduced by the Honorable James W. Wadsworth as chairman of the Military Affairs Committee of the United States Senate, and enacted. Grissinger, therefore, abandoned further proceedings in the Court of France upon his French patent, and by the time the Court of Claims had decided against him under the special statute it was too late to proceed further against France in the French courts.

This committee has been particularly impressed by the report of the commissioner in the Court of Claims filed June 22, 1931, in which the commissioner who heard the evidence found that all of the prior art disclosures which were submitted by the defendant in their trial of the case, were found to be inoperative under actual tests as made before the commissioner in the hearing room of the Court of Claims, March 10–21, 1930. The commissioner further found that the claimant had produced, patented and thus given to society and industry, the only known system, whereby telephonic communication over wires can be had over any distance; any degree of improvement in the transmission of the spoken word can be had and per contra, better intelligibility is available over transmission circuits of a much less costly construction and less expense of maintenance.

The evidence in the case is abundant and conclusive that the claimant's inventions created an epoch in the science and art of telephony. The claimant's inventions are fundamental; the only known method of accomplishing the purpose for which they are intended.

The evidence is complete and conclusive that the claimant's inventions as used by the American Expeditionary Force in France and interconnected with England, Belgium, and Italy were of inestimable

value to the Allies during the World War, who, up to the time that the American Expeditionary Forces completed its telephone system in France with the interconnections, were not, at any time, in the possession of an adequate telephone system of communications of any kind.

Pursuant to the above legislation, Elwood Grissinger instituted a suit against the United States in the Court of Claims which resulted adversely to Elwood Grissinger. Evidence has been presented to this committee which strongly indicates that the Court of Claims did not have before it a properly presented exposition of the facts. It is the contention of the estate of Elwood Grissinger that if a new hearing is provided that upon proper presentation of the facts, the Secretary of National Defense will find for the estate of Elwood Grissinger and reimburse it for the wrongful use and sale of the Grissinger European long-distance-telephone patents. Evidence has been brought to the attention of this committee which indicates that Elwood Grissinger, as a matter of patriotic duty, gave to the United States, on what we would now call a lend-lease basis, the right to use his system and invention. His system and invention provided the first operable method of long-distance-telephone communication. Without the use of his invention and system, the American Expeditionary Force would not have succeeded as it did, and on this point, General Squier testified before the Court of Claims as follows:

> If the telephone system in France had failed to function for 30 minutes, there would have been chaos.

In that same hearing, it is in evidence that General Pershing wrote to General Russell saying:

> Had it not been for the lines of communication installed, maintained and operated by the Signal Corps, the war could not have been won.

Evidence has been presented to this committee which appears to show that the United States of America, at the end of the First World War, without Grissinger's knowledge and consent, sold his system and inventions for long-distance telephony to the Government of the Republic of France as part of a bulk sale of war surplus materials. This committee studied the report of the American Bar Association Journal, International Law Division, relating to the December 1945, meeting (p. 55) in which it is stated that—

> we also sold France war goods of an estimated value of $456,000,000 for $400,000,000, and took 5-percent bonds in payment.

Further references are made to the final report of the United States Liquidation Commission of the War Department, pages 78, 79, 101, and 111, and to Senate Document 102, Sixty-ninth Congress, first session. The report of the bulk sale of surplus property after the First World War is printed on page 104 of the final report of the United States Liquidation Commission and was made Plaintiff's Exhibit No. H–1 in the Grissinger Court of Claims proceeding. The report quotes the bulk sale contract to the effect that the following property owned by the United States and located in France was sold to the Republic of France:

> All of the buildings, structures, warehouses, telephone and telegraph lines, railroads and other installations of every name and character constructed and acquired in France * * * together with the appurtenances and equipment pertaining thereto.

Evidence was also presented to the committee that since the Republic of France is the owner of the telephone system in France, it obtained without recompense to Elwood Grissinger the right to use a long distance telephone system built by the American Expeditionary Force, using the repeater system invented and patented by Elwood Grissinger. Although the United States received a total of $400,000,000 in 5-percent bonds, the interest on which was regularly paid semiannually during a 10-year period to the total sum of $200,000,000 (H. J. Res. 80; H. R. 6568, etc.), Elwood Grissinger received no compensation for the use of his patents and system by the American Expeditionary Force, and the sale of the system to the French Government.

The estate of Elwood Grissinger, therefore, proposes to establish a valid, though not a presently legally enforcible, claim against the United States for conversion of Elwood Grissinger's property in his inventions and systems and the unjust enrichment of the United States to an indeterminate amount by the sale of his property rights to the Republic of France. Certainly, if the truth of these facts can be sustained upon presentation to the Secretary of National Defense, under any principle of equity Elwood Grissinger is entitled to compensation by the United States for the use of his patents and systems by the American Expeditionary Force, and equally had the United States not sold his property without his permission, he and his estate would have been collecting royalties for many years for the use of his system by the French telephone system. There is perhaps to any practical businessman conclusive proof that Elwood Grissinger's patent was enforcible and valuable in that the American Telephone and Telegraph Company paid him $500,000 for the American rights alone. It is obvious that his French patents, which were identical with the American patents, had a similar value to users in France. If the United States Government inadvertently sold his property rights and still has in its possession the French bonds which were given as payment, some of the bonds, or a cash equivalent, rightfully belong to the estate of Elwood Grissinger.

All that is asked in the present bill is that a study be made to find the facts and to determine what amount of these bonds, if any, should equitably be turned over to the estate of Elwood Grissinger as representing payment rightfully belonging to Elwood Grissinger for the sale of his property. It would be simple unjust enrichment for the United States to keep money or bonds which it obtained from the sale of somebody else's property.

The Secretary of War at the time of the sale, John W. Weeks, and our esteemed colleague, James W. Wadsworth, the chairman of the Military Affairs Committee of the Senate, and the entire Congress of the United States, 25 years ago, recognized the indisputable justice of the Elwood Grissinger claim.

In view of the fact that the same considerations of justice and equity which persuaded Congress to provide Elwood Grissinger a hearing upon his contentions still prevail, they are not made less by the obvious incapacity of this inventor to protect his own interest in the business world. They are made more demanding. The passage of time does not change the principles of justice involved which persuaded this committee's predecessor to provide a forum for the hearing of Elwood Grissinger's complaint. There is no principle of

judicial finality involved. As to any decision of the court of claims in which it was misled, the Congress may at any time correct the error and proceed with justice. Congress owes it to itself and to this great inventor to determine these facts and provide a new forum.

There has been no unreasonable delay in presenting this claim.

There has been an innocence as to the necessity for the protection of selfish rights, which is often found in persons of an inventive frame of mind. Such people, by their application to the advancement of science, make themselves peculiar targets for unscrupulous persons. No matter how often the will of Congress to protect this inventor is thwarted, this Congress will patiently provide a new remedy and a new protection. The same principles of decency which persuaded the original committee in 1924 to provide a remedy still prevail and will persuade the present Congress in like manner.

It is the opinion of this committee that the decision of the Court of Claims, whether correct or incorrect, does not keep Congress from passing a further bill for the relief of the estate of Elwood Grissinger. It is legally sound that even though the stipulation were correct and the decision by the Court of Claims were correct, Congress has the power to pass a further bill for the relief of the estate of Elwood Grissinger. The issue Congress ordered heard in 1924 was not that of patent validity and infringement.

In the first place, Congress has complete control over the assets by taxation, collection of other revenue, and so forth, and after those assets are created Congress alone can authorize the disposition of such assets. Congress alone can authorize the expenditure of Government money. It alone can authorize the sale of Government property. Congress can authorize the gift or other disposition of Government assets without any consideration whatsoever moving to the United States if Congress sees fit to do so. Even if Congress should feel that the stipulation were factually correct and legally sound, but at the same time should conclude that even equitably or morally Grissinger should be reimbursed, it is not only with the power, but it is also the duty of Congress to grant relief regardless of the prior action by the Court of Claims. The issue in which the Congress is concerned is justice; ex aequo et bono.

There is another reason why Congress is free to act in this matter regardless of any prior action by the Court of Claims. The Court of Claims is not a constitutional court (*Williams* v. *United States*, 289 U. S. 553). It is only a legislative court. It is a creature of the legislature. It is an arm of Congress to aid Congress in performing its functions. It is fundamental that no one can sue the United States without its consent. In the early days no such consent was given. Congress alone considered and passed upon the private claims of its citizens against the Government. The claims became so numerous and the questions of fact so complex, that Congress then created a Court of Claims, and it first gave it only fact finding powers. After the facts were found Congress then determined whether in its wisdom the claims should be paid. Congress, later, further to relieve itself of the many burdens thus presented, gave the Court of Claims authority to render judgments as well as find facts in certain classes of cases, but even today the judgments of the Court of Claims are not paid until they are specifically appropriated for by Congress, and thus Congress may refuse to abide by the decision of the Court of Claims,

and the claimant would have no redress from such refusal. It thus appears that the Court of Claims is only the agent or servant of Congress, and, therefore, Congress is entirely free, from a legal standpoint, either to reject or abide by the determination of such court. Congress can abolish the court. It can withdraw all of its powers. The court exercises its powers only as an agent of Congress, and it is fundamental that the superior power is free to refuse to follow the conclusions of the subordinate.

Congress has frequently granted further relief even after the Court of Claims, or other tribunals, have decided against the plaintiff. It is not necessary to name all of such instances, only a few should suffice: In *North German Lloyd* v. *United States*, 61 C. Cls. 138; *Deutsche-Australische, etc.*, v. *United States*, 59 C. Cls. 450, and other similar cases involving a very large amount of money, the Court of Claims decided that the plaintiffs were not entitled to recover upon suits brought against the United States for the taking over during the World War of a number of steamships. The cases were appealed to the Supreme Court of the United States, and while there pending Congress passed the Settlement of War Claims Act of 1928, and created a War Claims Arbiter, giving that office power and jurisdiction to determine the amount of awards to the owner of these ships. Awards amounting to many millions of dollars were rendered and paid. In the case of the claim of *Katharine Drier* v. *Germany*, certain awards were made to the claimant by the Mixed Claims Commission of the United States and Germany. The claimant contended that she was entitled to additional money. The Mixed Claims Commission denied her the right to additional awards, but regardless of this, Congress saw the injustice of the situation and passed a special act for her relief, authorizing the payment of approximately $160,000 out of the so-called Special Deposit Account (Private Law 509, 76th Cong., S. Rept. No. 1,300, March 11, 1940). In the case of *Allen Pope* v. *United States*, 75 C. Cls. 436, for claims growing out of the construction of an aqueduct for a water supply for the city of Washington, the Court of Claims decided the claimant was entitled to recover upon certain claims, but denied his right to recover upon others. Congress has now pending a Special Bill, H. R. 606, authorizing reconsideration by the Court of Claims of these rejected claims, such reconsideration to be upon certain principles and bases set forth in the special jurisdictional bill.

This committee points out that the report of the commissioner was favorable to the claimant, Elwood Grissinger. If subsequent to that report, Elwood Grissinger's counsel, without his consent, stipulated to the operativeness of a prior French patent, which stipulation can now be shown to be incorrect, then the true facts were not brought to the Court of Claims and the will of this Congress was defeated. The committee feels that the estate of Elwood Grissinger should be given a further opportunity to present evidence as to the events subsequent to the commissioner's favorable report. There obviously will be no need for a further Court of Claims hearing, for the Secretary of National Defense car use the report of the commissioner as a basis, and determine, with the advice of the Court of Claims if he so desires, whether the facts indicate an improper presentation was actually made. If he so finds, he can then determine by what amount the United States was unjustly enriched by the inadvertent sale of Elwood Grissinger's patent as surplus Army property.

Hon. Earl C. Michener,
Chairman, Committee on the Judiciary,
House of Representatives.

Dear Mr. Michener: The War Department is opposed to the enactment of H. R. 2686, Eightieth Congress, first session, a bill "For the relief of the estate of Elwood Grissinger."

This bill would authorize the Secretary of War to pay and deliver to the estate of the late Elwood Grissinger, of Buffalo, N. Y., in full satisfaction of its claim against the United States, such amount of the bonds which the United States through its liquidation commission received from the Republic of France and other foreign countries as the Secretary of War with the approval of the Secretary of the Treasury finds to be equitable compensation for the use outside of the United States of certain long-distance telephone patents, inventions, and devices of the said Elwood Grissinger by the American Expeditionary Forces during the World War and the subsequent sale of such patents, inventions and devices.

The claim against the United States for which this bill authorizes compensation is substantially the same as that presented to the Court of Claims by a special jurisdictional act approved April 18, 1924, which act in pertinent part reads as follows:

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the United States Court of Claims be, and it is hereby, authorized and directed to hear and determine the claim of Elwood Grissinger for compensation for any unlawful sale by the United States, and any unlawful sale by others for the United States, either in the United States or elsewhere, for any use outside the United States and exclusive of any use by the United States, of certain long-distance telephone repeaters and of a system for the use of any repeaters on transmission lines, as disclosed and described in certain letters patent granted to said Grissinger by the United States, and also as disclosed and described in patents granted to him by certain foreign countries and competent jurisdiction is hereby conferred upon said court in this matter:"

The Court of Claims pursuant to the act of April 18, 1924, after a full and complete hearing of the Grissinger cause, decided that Grissinger failed to establish a claim against the United States. This decision is reported in *Grissinger* v. *The United States* (77 Ct. Cls. 106).

The War Department is unable to estimate accurately the fiscal effects of the proposed legislation.

The Bureau of the Budget advises that there is no objection to the submission of this report.

Sincerely yours,

Howard C. Petersen,
Acting Secretary of War.

United States Senate Committee on Claims

RE A BILL (S. 1996, 77TH CONG., 1ST SESS.) FOR THE RELIEF OF THE ESTATE OF ELWOOD GRISSINGER

State of Illinois,
Cook County, Northern District of Illinois, ss:

Arthur Bessey Smith, of 1033 West Van Buren Street, Chicago, Ill., being duly sworn, deposes and says:

I am annexing hereto a supplemental affidavit giving my qualifications as an electrical engineer.

I am familiar with the claim of the estate of Elwood Grissinger on account of the use and sale of certain long distance telephone patents, inventions, and devices of the said Grissinger by the United States. I acted as his consultant and adviser and as an expert witness in connection with *Elwood Grissinger* v. *The United States* in the Court of Claims of the United States.

The case was tried before the Honorable Hayner H. Gordon as Commissioner and a number of tests were made of several patents which the Government claimed were anterior to the Grissinger French patent. I was present at these tests and participated in them.

I understand that Commissioner Gordon found for Grissinger but the Court of Claims overruled these findings. I am informed and believe that the Court of Claims found that, if Grissinger's patent were valid, it had been infringed by the American Expeditionary Forces, but that the court held that Grissinger's patent was invalid. The court found that, if the Grissinger patent were liberally

construed, a man skilled in the art would, because of the Jacques patent, No. 781,208, have sufficient prior knowledge to make the Grissinger disclosure operative. But the court went on to state that, if this were true of the Grissinger disclosure, it would also be true of the d'Humy patent, No. 847,777, and since the d'Humy patent was issued in 1907 and the Grissinger French patent was not issued until 1912, the d'Humy patent, when liberally interpreted, must be held to anticipate the Grissinger patent.

I am also informed and believe that the court presumed the Jacques patent to be operative as the issuance of a United States patent is prima facie evidence of its operativeness.

It is my opinion that there was ample evidence adduced before the Commissioner and the court to rebut the presumption that the Jacques patent was operative.

I am further informed and believe that the operativeness of the d'Humy patent was based on a stipulation in which the claimant and the defendant stipulated that, if the d'Humy circuit had been tested with the networks grounded and lines grounded and with an artificial line or balancing network of the replica type, instead of the simple resistance, inductance, and capacitance disclosed by d'Humy, that the circuit would have been operative within the meaning and intent of the patent statutes

It is also my opinion that the stipulation in respect to the d'Humy patent was contrary to fact, and that d'Humy could not be made to operate except through the use of the disclosure made by Grissinger.

These opinions are based on the following:

There was a patent tested before Commissioner Gordon known as the Richards patent, No. 542,657. Richards and Jacques were very similar.

(*a*) Richards connects electromechanical speech wave amplifiers conductively in series with the main telephone line speech wave channel. Jacques does likewise.

(*b*) Richards shows a bridged repeating coil at the balance or junction point; so does Jacques (p. No. 1348).

(*c*) Richards shows that the balancing network is an extension of the real telephone line; so does Jacques.

(*d*) Richards shows an artificial balancing network for each line section; so does Jacques (p. No. 1348).

(*e*) Richards shows two or more line sections which may be totally different from each other; so does Jacques.

(*f*) Richards does not show a balancing network which has the same electrical characteristics as its complementary real line; Jacques does show a balancing network which has the same electrical characteristics as its complementary real line.

(*g*) Richards shows but four of the eight essentials required for a successful 22-type repeating system; Jacques shows but five of the eight essentials required for a successful 22-type repeating system.

When tested, Richards did not operate. One of the reasons it did not operate is, that, in my opinion, in order to have a practical repeater system, it is essential to have both the input and output circuits inductively associated with the line sections and their respective network extensions. Some of the other reasons it did not work are contained in the following excerpts from my cross-examination (record p. 512):

"It is my opinion that Richards has not disclosed an operative 22-type repeater circuit, and that his failure was due to the fact that he did not grasp some of the things which are necessary. These are as follows: It seems clear to me that he thought that his artificial balancing or equating circuit could be adjusted to operativeness by merely varying the rheostat or resistance in it so that the resistance to voice currents may be varied within wide limits. This shows that he did not get the fundamental idea of what the balancing network ought to be. He apparently did not see that he must achieve phase balance and current balance at certain junction points, for instance, points 6 and 7 on his diagram. He also had not apparently grasped the idea that the input side of the amplifier should be connected to the main lines through the repeating coils. These, I believe, are the most outstanding of the causes for inoperativeness."

The Jacques relays were inserted in the circuit in the same way as the relays of Richards. The Jacques patent, disregarding the compound repeater feature, employs differentially wound and conductively connected repeater elements, the same as Richards, and is therefore inoperative for the same reason. The differentially wound repeater elements in Jacques are conductively connected in

series relation with the talking circuit. In my cross-examination (record pp. 512–513) I pointed out why the Jacques patent was inoperative. My testimony on this point was as follows:

"What Jacques refers to on page 4, lines 16 to 24, would be an artificial line of the replica type if he had not qualified it by another statement which reveals to me that he really had not fully grasped the conditions to be met and the fundamental underlying principles. For instance, referring to page 4, lines 54 to 60, I find that he could move his balance points from the middle point of the receiving coils of his amplifier to a point between that middle point and one end and then expected to be able to balance it up by means of a miniature of the actual line. This, I believe from my experience, is a practical impossibility, for such a miniature could not be made to be correct over the range of telephone frequencies. This, together with other inoperative features, I believe, militate against and make impossible success."

Some of the reasons why telephone repeaters can not be conductively connected in series with the telephone line speech wave channels, as is done in the Richards patent and in the Jacques patent, are as follows:

The input impedance of the element should be independent of the frequency of the impressed voltage or else it should be the same function of the frequency as is the impedance of the telephone line to which it is to be connected. If this condition is not met, a distortion, destructive of good quality, may be introduced. In this case the voltage actuating the repeater is not that which the telephone line would impress upon another similar line, but is greater or less by a factor which depends upon the frequency. It is not sufficient that the element repeat accurately its input, but it is also requisite that its input circuit receive from the telephone line without distortion.

The output impedance of the element should be similarly independent of the frequency or else properly related to the impedance of a telephone line so that the line may receive without distortion the output of the repeater.

Unless there is a complete inductive coupling, the above requirements cannot be met.

Because of the foregoing, it is my opinion that the court had enough before it to warrant rebutting the presumption of the operativeness of the Jacques patent and should not have found on the record before it that the Jacques patent must be presumed to be operative.

It is my opinion that the stipulation entered into in regard to the d'Humy patent stipulating that the inoperativeness of d'Humy could have been cured by the use of artificial lines of the replica type should never have been entered into and that the stipulation is contrary to fact. The inoperativeness of d'Humy cannot be cured by artificial lines of the replica type, because there remains the defect of the ground connections which are an essential part of the d'Humy disclosure. These ground connections permit noise current to flow between the unavoidable leakages on the telephone line and the d'Humy grounds, thus making the repeater noisy. The court has already and properly said, that lines are nonuniform and leakages irregular. The grounded repeating circuits shown in d'Humy cannot be disregarded unless his specification is rewritten.

In addition to the above, in order to proceed toward a cure for the various defects in the d'Humy system, one must also employ matched transformers which were not to be had in d'Humy's time, nor until 8 years thereafter.

It will, therefore, be seen that the mere addition of a replica network to the d'Humy disclosure cannot possibly bring that disclosure into the realm of an operative possibility. The specification must be rewritten, the drawings changed, the patent reconstructed.

The error of the court resided in holding that d'Humy's inoperativeness can be cured by Jacques. Jacques was not tested by the defendant or ordered tested by the Commissioner. Jacques is shown by the record to be inoperative because the input of each repeater is directly connected in series with the line.

In my opinion, the composite circuit made up of the Jacques balancing network and the d'Humy disclosure would remain an inoperative combination. In fact, the procedure of selecting and rejecting parts of several patents, and then combining the selected parts to produce something which is admittedly better, is in itself not mere engineering, but is invention, deserving of a patent for so doing. This is evidenced by the group of patents which have been granted in almost any field.

On the other hand, Grissinger disclosed essential features in his French patent of 1912 which distinguished the Grissinger circuit from those disclosed prior to the Grissinger French patent. On this point, I testified before the commissioner as follows:

"XQ. 443. What do you consider the essential features which distinguish what you term 'the Grissinger circuit' from others disclosed prior to April 1912?

Answer. At this moment, the following things stand out in my mind. I will group them in two classes as follows:

First: He clarified the following things which were more or less hazily glimpsed by others: (1) Balancing network having the same electrical characteristics as the line section; (2) extension relationship of balancing network with regard to line section; (3) one iron core necessary for coils at all balance points.

Second: He introduced as new: (1) Two link circuits, each from a series repeating coil to a bridged repeating coil; (2) complete, direct, unidirectional inductive coupling of each amplifier; (3) the first and only complete and correct arrangement of circuit and apparatus in the 22-type to handle sensitive amplifiers."

It is my opinion that there is every merit in the claim of the estate of Elwood Grissinger. The fact is that it is the Grissinger disclosures and the Grissinger art and skill which the American Telephone & Telegraph Co. purchased and for which they paid $500,000. At the time of the purchase, in 1916, it is my opinion that their engineers and experts were fully acquainted with all of the prior patents, including Jacques and d'Humy, and they still felt it necessary to pay a substantial sum for the Grissinger disclosure It is the Grissinger repeater circuit which was put into actual practice and it is the Grissinger repeater circuit which was used in France so successfully by the American Expeditionary Forces in the last war. It is the only repeater circuit that up to that time was usefully employed in actual commercial practice.

ARTHUR BESSEY SMITH.

Sworn to before me this 23d day of January 1942.

[SEAL] ELIZABETH J. CONNELLY, *Notary Public.*

My commission expires February 14, 1945.

ANALYSIS OF OPINION

Grissinger v. *The United States*, 77 Court of Claims, 108. Opinion page 137.

WHALEY, Judge, delivered the opinion of the Court.

The opinion sets forth the special act of April 18, 1924 under which the patent case was brought.

Speech becomes attenuated and distorted in telephone circuits. This is overcome by supplying additional energy at certain points in the line. The device which supplies the additional energy is called a repeater.

Grissinger made applications for letters patent on telephone repeaters on February 20, 1902, and this application, with 10 others, was sold to the American Telephone & Telegraph for $500,000. The patents were issued to the American Telephone & Telegraph on September 12, 1916. In 1912 Grissinger made application for letters patent on his repeater in France.

The French telephone system was antiquated and the American Expeditionary Forces installed a complete telephone system in France after the entry of the United States into the World War. Nineteen repeater stations were installed in various parts of France. In August 1919, the United States sold to France the telephone lines and all equipment, including the Grissinger repeater installations. The question is whether or not the act of sale to France was an infringement of the Grissinger patent.

A telephone transmission system consists of a transmitter and a receiver connected by a line. The vibration of speech causes a diaphragm to operate a microphone which causes variations in the electrical current identical in frequency and intensity with the vibrations of air particles before the transmitter. These current oscillations cause similar variations in the magnetic pull of an electromagnet mounted in the receiver. The magnetic vibrations cause a corresponding movement of the diaphragm in the receiver with the result that the electrical energy is retranslated into a motion of the air particles which are, in turn, impressed upon the ear of the listener.

Distance attenuates and distorts the speech waves. The repeater system not only must supply additional energy to the line at some intermediate point but it must modulate this energy with the same oscillatory characteristics of the current flow.

The first telephone repeater system accomplished this by a feedback into the line at its electrical center. As the repeater had to be located at the center of the line, of course, only one repeater could be used. This was known as the 21 type

of repeater. Grissinger's invention is known as the 22 type of repeater and any number of repeaters can be used in connection with one line.

The electrical characteristics present in every telephone transmission line vary greatly with conditions present—the size of the wire, whether the line is an open line or whether coupling is used, the frequency of the current, and other factors create an impedence of extreme complexity.

For these reasons, if a telephone line 200 miles in length be contemplated as divided into 10 units of 20-mile sections, it is highly improbable that each section will have one-tenth of the impedance of the whole line or that the line will be electrically uniform in character.

The French patent was approximately 10 years subsequent to the United States Grissinger application.

The effectiveness of the Grissinger 22 repeater is based on the installation of an artificial line of the replica type. This means that each section of the artificial line has the same electrical characteristics as the corresponding section of the actual line, with the sections arranged in the same order. In other words, the actual line is divided into a number of short sections, say 20 miles each, and the artificial line is constructed in a series of sections, each section being an electrical replica of a corresponding 20-mile section of the actual line. These artificial sections are then assembled together in the proper sequence to simulate the entire real line so that the characteristics of the artificial line will be distributed with the same nonuniformity as exists in their distribution in the real line.

The Grissinger patent, however, would not be workable unless the person installing the line had sufficient knowledge of the prior art to install balancing networks of the replica type, in lieu of the inductive resistance and condenser. shown in the Grissinger patent.

This assumption can be made however because artificial lines of the replica type were known in the prior art as exemplified by the publication "Submarine Telegraphs" by Charles Bright, published in London in 1898. They are also described in the Jacques patent which is directed to a 22 type telephone repeating system and was issued on January 31, 1905

The patent is held operative as a disclosure therefore on the liberal interpretation and assumption that a man schooled in the art would use an artificial line of the replica type in order to obtain a proper balance. The AEF repeater system therefore infringes whatever monopoly has been created by the issuance of the French patent.

The use of filters and of audion amplifiers instead of the microphonic amplifier of Grissinger is immaterial as far as its effect on this legal conclusion is concerned.

We now come to a consideration of whether or not a monopoly in fact has been created by the issuance of the French patent to Grissinger. The French law in regard to lack of novelty is identical with our law. The prior art among other patents shows a United States patent to Jacques, No. 781207, patented January 21, 1905, defendant's exhibit 17: United States patent to D'Humy No. 847777, patented March 19, 1907, defendant's exhibit 18. There are also three other patents which show repeater systems of the 22 type with two balancing net works associated with the real line sections.

No tests were made of the circuit disclosed by the Jacques patent and therefore we must proceed on the assumption that it is presumed to be operative. The French Orissinger patent and the United States D'Humy patent appear to have an identity of disclosure. This is confirmed by the fact that in January 1912, Grissinger in connection with his United States patent, requested an interference with the D'Humy patent.

The filing date of the United States Grissinger application was prior to D'Humy, but the effective date of the Grissinger patent is subsequent thereto.

When the D'Humy patent was tested before the Commission, it was found to be inoperative in that there was a lower degree of intelligibility of speech than the telephone line tested without the repeaters and repeating circuits.

It was stipulated, however, that if the D'Humy circuit had been tested with the networks grounded and the lines grounded and with an artificial line or balancing network of the replica type instead of the disclosure in the D'Humy diagrams, that the circuit would have been operative. In other words, the operativeness of the D'Humy patent is cured by artificial lines of the replica type.

If Grissinger's French patent is given a broad interpretation, which the court gives it, it is anticipated by the D'Humy patent which must be given the same broad interpretation.

If the Grissinger patent is not given the broad interpretation involved in assuming the substitution of replica networks for the simple inductance shown, then the installation of the AEF containing, as it did, balancing replica networks, did not infringe the Grissinger French patent as narrowly construed.

In fact, since D'Humy connects his balancing networks with the real lines through an inductive coupling, the AEF repeater construction approximates the D'Humy patent more closely in this aspect than it does the Grissinger French patent with its conductive coupling of the balancing networks.

Accordingly, the Grissinger French patent is held to be invalid because of lack of patentable novelty, when interpreted with sufficient breadth and scope to include the AEF repeater installation.

For the reasons stated, the plaintiff is not entitled to recovery on the ground that his French patent is invalid and the Italian, Belgium, and British patents have not been infringed, and the petition should be dismissed.

Williams, Littleton, and Green concurring.

Booth, C. J. took no part.

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